

solid state communications

an international journal

volume 81



Pergamon Press
Oxford · New York · Seoul · Tokyo

SOLID STATE COMMUNICATIONS

EDITOR-IN-CHIEF, ELIAS BURSTEIN

ASSOCIATE EDITOR-IN-CHIEF, MANUEL CARDONA

EDITORIAL POLICY COMMITTEE

P. AIGRAIN, *Chairman*

P. G. DE GENNES

J. A. KRUMHANS

W. M. LOMER

S. LUNDOVIST

H. SUHL

Y. TOYOZAWA

BOARD OF EDITORS

V. M. AGRANOVICH, *Moscow*

S. ALEXANDER, *Rehovot*

M. BALKANSKI, *Paris*

I. BALSLEV, *Odense*

R. BARRIE, *Vancouver*

P. BURET, *Grenoble*

C. CALANDRA, *Trieste*

M. F. COLLINS, *Hamilton*

P. H. DEDERICH, *Jülich*

G. FASOL, *Tokyo*

R. FIESCHI, *Parma*

Z. GAN, *Beijing*

C. E. T. GONÇALVES DA

SILVA, *Campinas*

M. GRYNBERG, *Warsaw*

G. GÜNTHERODT, *Aachen*

J. JOFFRIN, *Paris*

H. KAMIMURA, *Tokyo*

L. V. KELDISH, *Moscow*

W. Y. KUAN, *Beijing*

B. LUNDOVIST, *Göteborg*

A. H. MACDONALD,

Bloomington

A. A. MARADUDIN, *Irvine*

T. P. MARTIN, *Stuttgart*

E. MOLINARI, *Rome*

A. OKIJI, *Osaka*

A. PINCZUK, *New Jersey*

C. N. R. RAO, *Bangalore*

R. H. SILSBEE, *Ithaca*

J. TAUC, *Providence*

T. SUZUKI, *Sendai*

D. VAN DYCK, *Antwerp*

P. WACHTER, *Zürich*

F. YNDURAIN, *Madrid*

A. ZAWADOWSKI, *Budapest*

Institute of Spectroscopy of the Academy of Sciences, U.S.S.R. Academgorodok, Podolskiy, Moscow obl. 142092, Russia

Department of Chemical Physics, Weizmann Institute of Science, Rehovot 76100, Israel

Laboratoire de Physique des Solides, Université Pierre et Marie Curie, 4, Place Jussieu, Tour 13-2e Etage, 75230 Paris Cedex 05, France

Fysisk Institut, Odense Universitet, DK-5230 Odense M, Denmark

Department of Physics, University of British Columbia, Vancouver 8, British Columbia, Canada V6T 1W5

Centre d'Etudes Nucléaires, DRF/SPH - MDN, 85x, 38041 Grenoble Cedex, France

Laboratorio TASC-INFM, Padriciano, 99, 34012 Trieste, Italy

Department of Physics, McMaster University, Hamilton, Ontario, Canada L8S 4M1

Institut für Festkörperforschung der Kernforschungsanlage Jülich, GmbH, 5170 Jülich 1—Postfach 1913, Federal Republic of Germany

Research Center for Advanced Science and Technology (RCAT), University of Tokyo, 4-6-1 Komaba, Meguro-ku, Tokyo 153, Japan

Istituto di Fisica, Università degli Studi, 43100 Parma, Italy

Department of Physics, Peking University, Beijing 100871, People's Republic of China

Laboratório Nacional de Luz Sincrotron/CNPq/MCT, Caixa Postal 6192, Campinas 13081 SP, Brazil

Institute of Experimental Physics, University of Warsaw, 00-681 Warsaw, ul. Hoza 69, Poland

II. Physikalisches Institut, RWTH Aachen, Templergraben 55, D-5100 Aachen, Federal Republic of Germany

Université Paris-Sud, Batiment 510, 91405 Orsay, France

The Science University of Tokyo, Department of Applied Physics, Faculty of Science, 1-3 Kagurazaka, Shinjuku-ku, Tokyo 162, Japan

P. N. Lebedev Institute, Academy of Sciences of the U.S.S.R. Leninskii Prospect 53, 117924 Moscow, Russia

(On leave)

Institute of Theoretical Physics, Chalmers University of Technology, S-412 96 Göteborg, Sweden

Department of Physics, Indiana University, Bloomington, Indiana 47405, U.S.A.

Department of Physics, University of California, Irvine, California 92717, U.S.A.

Max-Planck-Institut für Festkörperforschung, Heisenbergstrasse 1, 7000 Stuttgart 80, Federal Republic of Germany

CNR Istituto "Corbino", Via Cassia 1216, 00189 Rome, Italy

Department of Applied Physics, Faculty of Engineering, Osaka University, Suita, Osaka 565, Japan

Room 1D - 433, AT&T Bell Laboratories, Murray Hill, New Jersey 07974, U.S.A.

Indian Institute of Science, Bangalore 560012, India

Laboratory of Atomic and Solid State Physics, Cornell University, Ithaca, New York 14853, U.S.A.

Box D, Division of Engineering, Brown University, Providence, Rhode Island 02912, U.S.A.

Department of Physics, Faculty of Science, Tohoku University, Aoba-ku, Sendai 980, Japan

University of Antwerp (RUCA), Groenenborgerlaan 171, B-2020 Antwerp, Belgium

Laboratorium für Festkörperforschung der ETH, CH-8093 Zürich, Hönggerberg, Switzerland

Dpto. de Física de la Materia Condensada, C-III, Universidad Autónoma de Madrid, Cantoblanco, 28049-Madrid, Spain

Institute of Theoretical Physics, Eötvös Loránd University, H-1088 Budapest, Puskin Utca 5 - 7, Hungary

PRODUCTION EDITOR

M. R. JAKEMAN, Production Department, Pergamon Press Ltd, Headington Hill Hall, Oxford OX3 0BW, U.K.

SOLID STATE COMMUNICATIONS is a companion journal to THE JOURNAL OF PHYSICS AND CHEMISTRY OF SOLIDS.

Publishing and Advertising Offices: Pergamon Press Inc., 395 Saw Mill River Road, Elmsford, NY 10523, U.S.A.; Pergamon Press Ltd, Headington Hill Hall, Oxford OX3 0BW, U.K. Tel.: Oxford (0865) 794141. Fax.: Oxford (0865) 60285.

Copyright © 1992 Pergamon Press Ltd

Published: 4 times per month

Subscription enquiries from customers in North America should be sent to: Pergamon Press Inc., 395 Saw Mill River Road, Elmsford, NY 10523, U.S.A. and for the remainder of the world to: Pergamon Press Ltd, Headington Hill Hall, Oxford OX3 0BW, U.K. Annual institutional subscription rate (1992): £915.00 (US\$1660.00). Two-year institutional rate (1992/93): £1738.00 (US\$3154.00). Sterling prices are definitive. US dollar prices are quoted for convenience only, and are subject to exchange rate fluctuation. Prices include postage and insurance and are subject to change without notice. Subscription rates for Japan are available on request.

Back Issues: Back issues of all previously published volumes, in both hard copy and on microform, are available direct from Pergamon Press offices.

Second Class Postage Paid at RAHWAY NJ. Postmaster send address corrections to Pergamon Press Inc., 395 Saw Mill River Road, Elmsford, NY 10523, U.S.A.

CONTENTS

JANUARY

VOLUME 81, NUMBER 1

1992

General Papers

C. Schüller, J. Kraus, V. Latussek and J. K. Ebeling

L. Skrbek, L. Smrčka, J. Stehno and J. Šebek

O. Isnard, S. Miraglia, J. L. Soubeyroux and D. Fruchart

A. Baldereschi, G. Senatore and I. Oriani

P. E. Van Camp, V. E. Van Doren and J. T. Devreese

V. G. Golubev, G. I. Kropotov, S. A. Proshin and V. P. Vasiliev

Rui Q. Yang and J. M. Xu

M. Maaref, F. F. Charfi, D. Scalbert, C. Benoit à la Guillaume and R. Planel

C. Ayache, I. L. Chaplygin, A. I. Kirilyuk, N. M. Kreines and V. I. Kudinov

S. Vitta

R. Raj, I. Abram and J. A. Levenson

N. P. Baran, V. G. Gavriljuk, V. M. Maksimenko, E. E. Smuk, S. Yu. Smuk and B. D. Shanina

Ta-Ryeong Park, S. A. Solin and J. L. Dye

A. A. Sorokin, G. K. Ryasny, B. A. Komissarova, L. G. Shpinkova, E. N. Shirani, V. I. Krylov, A. V. Tsvyashchenko, L. N. Fomichova and T. O. Panova

O. V. Ivanov and E. G. Maksimov

1 Obituary

3 Collective intersubband excitations in a *p*-doped GaAs/AlGaAs multiple quantum well

9 Reproducible fluctuations of carrier concentration in Si-MOSFET below 1 K

13 Neutron powder diffraction study of $R_2Fe_{17}H_x$ compounds with $R = Pr$ and Nd

21 Madelung energy of the Wigner crystal on lattices with non-equivalent sites

23 High pressure structural phase transformation in gallium nitride

27 Resonant states of the hydrogen-like impurities in anisotropic band semiconductor: shallow donors in Ge

31 Self-focusing and coupling of electron waves in effective-mass waveguides

35 Γ - X_2 mixing in GaAs/AlAs superlattices of type II

41 Spectrum of persistent photoconductivity in YBaCuO films

47 Conduction mechanism in crystalline InSe-In₂Se₇ composite

51 Multiphoton transition in high-intensity optical coherent transients in multiple quantum wells

55 Spin resonance of conduction electrons in carbon and nitrogen austenite

59 Crystal size dependent emission from mobile exciton-polaritons in sodium cryptand sodide

65 Magnetic hyperfine fields at ¹⁸¹Ta in the samples of GdFe₂ crystallized at high pressure in the range 3.0 to 6.3 GPa

69 Electronic polarizability of ionic crystals

Superconductors and Superconductivity

- C. G. Cui, C. C. Lam, B. C. Yang,
X. P. Wang, P. C. W. Fung, S. T. Tang,
S. L. Li and X. N. Jing
- S. Kasiviswanathan, G. Rangarajan,
S. Lakshmiraghavan and G. V. Subba Rao
- R. Gajić, M. J. Konstantinović,
Z. V. Popović, W. König, S. Zec and
I. Bradarić
- A. K. Sood, N. Chandrabhas,
D. V. S. Muthu, A. Jayaraman, N. Kumar,
H. R. Krishnamurthy, T. Pradeep and
C. N. R. Rao
- M. Kobayashi, Y. Akahama, H. Kawamura,
H. Shinohara, H. Sato and Y. Saito
- F. J. Owens
- K. Rogacki, R. Laiho, L. Heikkilä and
W. Sadowski
- R. B. Flippen
- N. Kannan, C. Bansal and G. Rajaram
- 75 Characterization of critical current for high J_c single crystal $\text{YBa}_2\text{Cu}_3\text{O}_x$ thin film on LaAlO_3 deposited by DC magnetron sputtering
- 81 Single particle tunneling studies on $\text{Bi}_2\text{Sr}_2\text{Ca}_1\text{Cu}_2\text{O}_y$
- 85 Phonon softening in the far-infrared spectra of $\text{YBa}_2(\text{Cu}_{1-x}\text{Ni}_x)_3\text{O}_7$
- 89 Pressure-induced shift of the photoluminescence band in single crystals of buckminster fullerene C_{60} and its implications for superconductivity in doped samples
- 93 X-ray diffraction study of iodine-doped C_{60}
- 97 Magnetic field dependence of microwave absorption through H-T irreversibility line in $\text{Bi}_{2-x}\text{Pb}_x\text{Sr}_2\text{Ca}_{N-1}\text{Cu}_N\text{O}_{4-2N}$
- 101 Evidence for layered structure of $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ single crystals
- 105 Magnetic flux exclusion properties of ferromagnetic/superconductive powder composites
- 109 Effect of Ga_2O_3 substitution in Bi-2212 superconductor

General Papers (contd)

- X. X. Zhang, P. Hong and B. Di Bartolo
- J. M. Cadogan, Hong-Shuo Li,
S. J. Campbell and J. Jing
- Z. Sobiesierski, D. A. Woolf,
D. I. Westwood, A. Frova and C. Coluzza
- V. V. Pogosov
- Zheng Wen-Chen
- R. Jakubas, J. Lefebvre, H. Fontaine and
P. François
- 117 Impurity-phonon interaction effect on the phonon density of states in $\text{MgO}:\text{V}^{2+}$
- 121 A Mössbauer study of spin-reorientation in YCo_2B
- 125 Creation of radiative hydrogen-related states within strained $\text{In}_x\text{Ga}_{1-x}\text{As}/\text{GaAs}$ quantum wells by hydrogenation
- 129 On some tenzoemission effects of the small metal particles
- 135 Investigation of the zero-field splitting for Mn^{2+} ion in spinel crystals from the superposition model
- 139 Dilatometric studies of $(\text{CH}_3\text{NH}_3)_3\text{Sb}_2\text{Br}_9$ and $(\text{CH}_3\text{NH}_3)_3\text{Bi}_2\text{Br}_9$
- i Instructions for Authors on the Preparation of Camera-Ready Manuscripts for *Solid State Communications*

JANUARY

VOLUME 81, NUMBER 2

1992

General Papers

- V. G. Golubev, G. I. Kropotov,
S. A. Proshin and V. P. Vasiliev
- 145 Resonant states of the hydrogen-like impurities in anisotropic band semiconductor: shallow acceptors in Ge

- | | |
|---|---|
| A. Kisiel, P. M. Lee, E. Burattini,
G. Dalba, P. Fornasini and W. Giriat | 151 X-ray absorption near edge structure analysis of CdFeTe: XANES experiment and theoretical LMTO calculations |
| E. Costanzo, G. Faraci, A. R. Pennisi,
S. Ravesi, A. Terrasi and G. Margaritondo | 155 Initial and final state effects in photoemission from gold clusters |
| R. Krishnan and N. K. Flevaris | 159 Magnetic anisotropy of Co/Pt multilayers on MgO(100) substrates |
| F. A. Reboredo and C. R. Proetto | 163 Noncompensated GaAs sawtooth doping superlattices: self-consistent band structure |

Superconductors and Superconductivity

- | | |
|--|--|
| P. P. Gorbik, M. V. Bakuntseva and
G. M. Shalyapina | 171 Diffusion of sulphur, selenium and bismuth in HTSC $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ and $(\text{Pb}_x\text{Bi}_{1-x})_2\text{Ca}_2\text{Sr}_2\text{Cu}_3\text{O}_y$ ceramics |
| Z. Jirák | 175 Coordination and the bond valence sums in modulated superconductor $\text{Bi}_2(\text{Sr,Ca})_3\text{Cu}_2\text{O}_{8+\gamma}$ |
| R. C. Budhani, M. Suenaga and
D. O. Welch | 179 Pinning, creep and possible melting in the mixed state of NbZr films |
| H. Cohen, E. Kolodney, T. Maniv and
M. Folman | 183 A comparative reflection electron energy loss study of C_{60} and graphite |
| V. H. Crespi and M. L. Cohen | 187 Possible discrepancies between transport and superconducting electron-phonon couplings due to anisotropic Fermi surface nesting |
| M. Grajcar, A. Pleceník, M. Darula and
Š. Beňačka | 191 Surface degradation of $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ observed by means of contact resistance measurement |
| F. Sacchetti, O. Moze and C. Petrillo | 195 Phonon softening in tantalum below 4.2 K |

General Papers (contd)

- | | |
|---|---|
| J. Trost, P. Fröbel and K. Bärner | 201 Hydrogen loading of $[(\text{Li}_2\text{O})(\text{B}_2\text{O}_3)_2][\text{WO}_3]$ -glasses through electrolyte/glass- and palladium/glass-interfaces |
| R. J. McEachern, J. A. Weil and B. Sawyer | 207 Distortion and ^{17}O hyperfine interaction in the centres $[\text{GeO}_4]_{\text{T},11}^-$ in α -quartz |
| Ka-Di Zhu and Shi-Wei Gu | 211 Polaronic states that incorporate effects of phonon confinement in a quantum box |
| S. V. Nistor, M. Velter-Stefănescu and
C. D. Mateescu | 215 Investigation ESR of the hole trapped Ti^{2+} center in SrCl_2 crystals |
| C. Krembel, M. C. Hanf, J. C. Peruchetti,
D. Bolmont and G. Gewinner | 219 Photoemission study of ultra-thin Cr layers on Ag(100) |

JANUARY

VOLUME 81, NUMBER 3

1992

General Papers

- | | |
|--|--|
| A. N. Petrovsky, A. O. Salnick,
V. V. Zuev, D. O. Mukhin, | 223 Influence of carrier recombination on the pulsed photothermal beam deflection signal in semiconductors |
|--|--|

M. M. Mekhtiev, J. Pelzl, A. C. Boccardo
and D. Fournier

V. S. Dneprovskii, V. I. Klimov,
D. K. Okorokov and Yu. V. Vandyshev

V. I. Antonenko, P. A. Todua,
D. A. Znamensky, Yu. N. Moiseev and
V. I. Panov

P. Behrens

K. Saito, K. Kikuchi and I. Ikemoto

O. W. Shih, R. L. Aggarwal, T. Q. Vu and
P. Becla

227 Strong optical nonlinearities and laser emission of
semiconductor microcrystals

231 Electron properties of dielectric-semiconductor interfaces in
SiC₂-*a*-Si:H-Langmuir-Blodgett film structure

235 Bonding in silver-oxygen compounds from Ag L₃ XANES
spectroscopy

241 Incommensurate crystal-instability and a role of internal
degrees of freedom in bis(4-chlorophenyl)sulfone molecules

245 Bandedge magnetorefectance and magnetization of
Cd_{1-x}Co_xTe

Superconductors and Superconductivity

P. S. Mukherjee, A. Simon, M. S. Sarma
and A. D. Damodaran

R. Danieli, V. N. Denisov, G. Ruani,
R. Zamboni, C. Taliani, A. A. Zakhidov,
A. Ugawa, K. Imaeda, K. Yakushi,
H. Inokuchi, K. Kikuchi, I. Ikemoto,
S. Suzuki and Y. Achiba

M. Kaiser, J. Reichenbach, H. J. Byrne,
J. Anders, W. Maser, S. Roth, A. Zahab
and P. Bernier

R. S. Liu, J. D. Johnson and P. P. Edwards

K. H. Han, Sung-Ik Lee,
Sung-Ho Suck Salk, H. J. Shin,
Sung Hee Lee and Ja Kang Ku

253 Oriented grain growth in YBa₂Cu₃O_{7- δ} by alkali metals (Li,
Na and K) substitution

257 Low energy electronic excitations and Fano resonance in K
doped C₆₀ from Raman scattering excited at 1.16 eV

261 Steady state photoconductive response of C60/C70 films

265 Ferrimagnetism in the Ti-Sr-V-O system

269 Enhancement of the noise spectral densities near the resistive
transition region of YBCO micro-bridge

General Papers (contd)

D. L. Preston and D. C. Wallace

Hong-Shuo Li and J. M. Cadogan

J. Martinez-Pastor, A. Segura and
A. Cantarero

A. Ait-Ouali, S. Jandl, M. Banville and
J. Zauhar

Z. Kletowski

277 A model of the shear modulus

283 Origin of the anomalous temperature dependence of the Nd
sublattice magnetization in Nd₂Fe₁₄B

287 Low temperature mobilities of 2-D electrons in indium
selenide: neutral and ionized impurity scattering

293 Infrared active phonons study in CsCoCl₃

297 Resistivity of the GdIn₃ single crystal

JANUARY

VOLUME 81, NUMBER 4

1992

General Papers

i Announcement—Pierre-Giles de Gennes

Chin Lin, Yun-Xi Sun, Zun-Xiao Liu, Hong-Wei Jiang, Gang Jiang, Ji-Lian Yang, Bai-Shen Zhang and Yong-Fan Ding	299 Magnetic properties of Si-substituted Y_2Fe_{17}
T. Aono and K. Kase	303 Green photoemission of α -Ga ₂ S ₃ crystals
M. S. Brandt, H. D. Fuchs, M. Stutzmann, J. Weber and M. Cardona	307 The origin of visible luminescence from "porous silicon": a new interpretation
Meixiang Wan, Weixia Zhou, Yongfang Li and Jieshan Liu	313 Protonic doping in free-standing film of polyaniline
M. S. Rogalski and S. B. Palmer	317 Ultrasound velocity temperature dependence profile in holmium
N. C. Constantinou and M. G. Cottam	321 Power spectra of bulk and surface plasmons in a semi-infinite superlattice of electron gas layers
Hu Ze, Wang You-Tang, Shi-Wei Gu, T. C. Au-Yeung and Y. Y. Yeung	325 The cyclotron mass and self-trapping energy of an interface polaron
J. Y. Duquesne and G. Bellessa	329 Anomalous elastic constants in an oriented polymer
P. E. Tomaszewski	333 Polytypism of α -LiNH ₄ SO ₄ crystals

Superconductors and Superconductivity

A. Gould, S. M. Bhagat, F. C. Wellstood and S. Tyagi	339 The "virgin" curve for microwave magnetoabsorption in micron-size powders of cuprate superconductors
K. Kornelsen, J. E. Eldridge, H. H. Wang, H. A. Charlier and J. M. Williams	343 Infrared study of the metal-insulator transition in the organic conductor κ -(BEDT-TTF) ₂ Cu[N(CN) ₂]Cl
V. M. Edelstein	351 A novel anomalous contribution to the Hall effect in some high- T_c compounds
C. S. Menon and N. V. Eldhose	357 Third order elastic constants of high temperature superconductor YBa ₂ Cu ₃ O ₇

General Papers (contd)

A. C. Notari, B. J. Schrappe and P. Basmaji	363 Electrical properties of DX centers in heavily Se-doped Al _x Ga _{1-x} As
T. Baby and V. P. N. Nampoori	367 Fluorescence emission of SrS:Eu ²⁺ phosphor-energy level splitting of Eu ²⁺

iii Author Index Nos 1-4

FEBRUARY

VOLUME 81, NUMBER 5

1992

General Papers

I. J. Ferrer and C. Sánchez	371 Photoelectrochemical response and optical absorption of pyrite (FeS ₂) natural single crystals
S. R. E. Yang	375 Quantum shot noise spectrum of a point contact
S. R. E. Yang	379 Inequality of the resonant half-linewidth and the decay rate of a quasi-bound state in a resonant double barrier

- | | |
|--|---|
| E. L. Albuquerque and M. G. Cottam | 383 Theory of plasmon-polaritons in Fibonacci-type superlattices with two-dimensional electron gas layers |
| C. M. Dai and D. S. Chuu | 387 The vibrational mode softening in thin film CdS |
| S. Kumar and A. Bittar | 391 Anneal-induced structural changes in amorphous Si/Ge superlattices |
| Y. Hwang, T. Aizawa, W. Hayami, S. Otani, Y. Ishizawa and S. J. Park | 397 Charge transfer between monolayer graphite and NbC single crystal substrates |

Superconductors and Superconductivity

- | | |
|--|---|
| A. S. Alexandrov and J. Ranninger | 403 Charged Bose-liquid characteristics in high- T_c superconductors |
| A. A. Maksimov, A. V. Puchkov, I. I. Tartakovskii, V. B. Timofeev, D. Reznik and M. V. Klein | 407 Investigations of the temperature dependence of the low energy electronic Raman scattering in $Tl_2Ba_2CaCu_2O_8$ single crystals |
| O. F. de Lima | 411 Evidence of surface superconductivity in the high- T_c oxides |
| M. Sera, S. Tanaka, M. Sato and H. Fujishita | 415 Anomalous thermoelectric power of $Bi_{1.6}Pb_{0.5}Sr_{1.9-y}La_yCu_{1.05}O_z$ |
| X. Wei, A. J. Pal, L. Chen, G. Ruani, C. Taliani, Z. V. Vardeny and R. Zamboni | 419 CDW suppression and photoinduced gap states in $BaBiO_3$ |
| M. Andersson, Ö. Rapp and R. Tellgren | 425 Neutron diffraction studies of interatomic distances in the $Y_{1-2}Ca_xTh_xBa_2Cu_3O_{7-\delta}$ system |

General Papers (contd)

- | | |
|--|---|
| T. Takabatake, S. Miyata, H. Fujii, K. Yokoyama and M. Taniguchi | 433 Photoemission study of the uranium ternary compounds $U_3T_3X_4$ ($T = Ni, Cu$; $X = Sn, Sb$) |
| Y. Nagaraja Naidu, J. Lakshmana Rao and S. V. J. Lakshman | 437 Electron paramagnetic resonance and optical absorption spectra of Mn^{2+} in magnesium malate pentahydrate (MMPH) single crystals |
| Xiao Liu, Hong Chen, Guochang Gu, Yongchen Xu and Xiang Wu | 443 Critical analysis of structural transformation in $(NH_4)_2TeCl_6$ via specific heat measurement |

i Erratum

FEBRUARY

VOLUME 81, NUMBER 6

1992

General Papers

- | | |
|---|--|
| Y. P. Li and J. M. D. Coey | 447 Electronic structure and magnetism of $Y(Fe_{11}Ti)$ and $Y(Fe_{11}Ti)N$ |
| S. N. Ehrlich, L. D. Chapman and N. M. Lazarz | 451 A time-resolved X-ray diffraction study of hot phonons in quartz |
| Zhao Feng-Qi and N. Bilge | 457 The ground state energy of the shallow bound polaron in ternary mixed crystal |
| K. Lal, S. Niranjana N. Goswami and A. R. Verma | 461 Direct observation of dynamical diffraction features in thin natural diamond crystals—anomalous transmission of X-rays |

- H. Weinert, J. Kolenda and M. Petruskas 467 Lateral transport in GaAs-(Al,Ga)As superlattices investigated by transient grating measurements
- Y. Nishio, K. Kajita, W. Sasaki, R. Kato, A. Kobayashi and H. Kobayashi 473 Thermal and magnetic properties in organic metals (DMe-DCNQI)₂Cu, (DMeO-DCNQI)₂Cu and (DMe_{1-x}MeBr_x-DCNQI)₂Cu: enhancement of density of states
- T. Ohtsuki, B. Kramer and Y. Ono 477 Numerical evaluation of the critical behavior at the metal-insulator transition in a magnetic field
- A. Szytuła, M. Kolenda, R. Troć, V. H. Tran, M. Bonet and J. Rossat-Mignod 481 Crystal and magnetic structure of UPtGe
- G. Carlotti, D. Fioretto, L. Giovannini, G. Sogino, V. Pelosin and B. Rodmacq 487 Selective determination of the C₁₁ elastic constant in unsupported Ag/Ni superlattices by Brillouin scattering

Superconductors and Superconductivity

- M. V. Belousov, F. A. Chudnovskii, V. Yu. Davydov, B. Sh. Elkin, S. L. Shokhor and V. Ya. Velichko 493 Raman scattering and resistivity measurements for ion-irradiated YBa₂Cu₃O₇ epitaxial films
- J. C. Phillips 497 Micromorphological structure and superconductive properties of YBa₂(Cu_{1-x}Zn_x)₃O_{8.9} alloys
- S. K. Misra, M. Kahrizi, J. Kotlinski, M. O. Steinitz and F. S. Razavi 503 Single-crystal EPR and thermal-expansion studies of the high-T_c superconductor Bi₂Sr₂CaCu₂O_{8+δ}
- S. Koka, A. Chatterjee and K. N. Shrivastava 509 A model of superconductivity in alkali-metal-carbon compounds

General Papers (contd)

- R. Jakubas, J. Lefebvre, H. Fontaine and P. François 515 Ultrasonic study near the ferro-paraelectric phase transition in (CH₃NH₃)₅Bi₂Cl₁₁ and (CH₃NH₃)₅Bi₂Br₁₁ crystals
- Y. B. Xu, H. R. Zhai, M. Lu, Y. Z. Miao and B. X. Gu 521 Metallic bilayers for MOKE enhancement at long wavelength
- P. Hawrylak 525 Excitonic effects in optical spectra of a quasi-one-dimensional electron gas
- T. Soma, S. Takashima and H.-M. Kagaya 529 Elastic stiffness constants of Al-Si and Al-Ge alloys by solid-solutioning under high pressure
- N. G. Alexandropoulos and K. T. Kotsis 533 Umweg peak high resolution flat crystal X-ray spectrometer
- M. Ohkubo 537 Monte Carlo calculation for equilibrium oxygen content of YBa₂Cu₃O_x

FEBRUARY

VOLUME 81, NUMBER 7

1992

General Papers

- Chang-Seop Ri and P. R. Watson 541 Identification of the bonding site of chlorine on the Ti(0001) surface

- R. N. Ghosh and R. H. Silsbee 545 Spin dependent transport in a two-dimensional electron gas
- R. Pandey, Xiaoyang Yang, J. M. Vail and Jun Zuo 549 Derivation of pair potentials from first principles and simulation of NaF clusters
- F. Gozzo, C. Coluzza, G. Margaritondo and F. Flores 553 Intrinsic and extrinsic charge neutrality levels in semiconductors: an empirical approach
- R. Kucharczyk and M. Stęślicka 557 A finite superlattice with the embedded quantum well
- T. Kamiyama, K. Haneda, T. Sato, S. Ikeda and H. Asano 563 Cation distribution in ZnFe_2O_4 fine particles studied by neutron powder diffraction
- A. Arbaoui, J. Dumas, E. B. Lopes and M. Almeida 567 Depinning of the charge density wave in pure and non-stoichiometric blue bronzes $\text{A}_{0.30}\text{MoO}_3$ ($\text{A} = \text{K}, \text{Rb}$)
- R. E. Camley, M. G. Cottam and D. R. Tilley 571 Surface polaritons in antiferromagnetic superlattices with ordering perpendicular to the surface
- S. G. Mishra and R. V. Pai 575 Low temperature susceptibility of Ni_3Ga and Ni_3Al
- S. Takagi 579 On the principle of interferometer for an Andreev-reflected quasiparticle
- T. Q. Vu, V. Bindilatti, Y. Shapira, A. Twardowski, M. Demianiuk and E. J. McNiff Jr 583 Reversal of the magnetic anisotropy of $\text{Cd}_{1-x}\text{Fe}_x\text{S}$ at high magnetic fields

Superconductors and Superconductivity

- L. Genzel, M. Bauer, R. Yoder and H.-U. Habermeyer 589 Far-infrared investigations on $\text{YBa}_2\text{Cu}_3\text{O}_7$ films with the use of a reflection Fabry-Perot-interferometer
- R. Suryanarayanan, L. Ouhammou, M. S. R. Rao, O. Gorochov, P. K. Mukopadhyay and H. Pankowska 593 Critical carrier density and revival of superconductivity in Ca substituted $\text{YSrBaCu}_2\text{M}_{0.4}\text{O}_{6+x}$ ($\text{M} = \text{Al}, \text{Fe}$)
- F. Frangi, B. Dwir and D. Pavuna 599 Tunneling characteristics of $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ -Pb window-type Josephson junctions
- S. R. Jha, R. Rajput, D. Kumar, Y. S. Reddy and R. G. Sharma 603 Studies on thermoelectric power and percolation in BSCCO system
- M. A. M. Gijs, M. Okada, R. M. Wolf, Th. Van Rooy, A. Gilabert and M. G. Médici 609 Superconducting proximity effect in $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ -Ag-Pb junctions
- K. N. Shrivastava, M. Puri, J. Bear and L. Kevan 613 Determination of the flux creep time from the microwave absorption in the high-temperature superconductor $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$

General Papers (contd)

- P. Javorský, M. Diviš, V. Šíma and J. Bischof 619 Specific heat study of $\text{Tm}_x\text{Y}_{1-x}\text{Cu}_2$
- B. I. Craig and P. V. Smith 623 Dihydride 1×1 structures on group IV (100) surfaces
- B. I. Craig and P. V. Smith 627 A MINDO molecular orbital description of the three phases of boron nitride
- i Corrigendum

General Papers

- R. Guillamet, M. Lenglet and F. Adam 633 Reflectance spectroscopy of oxides films α -Cr₂O₃ and α -Fe₂O₃ on iron
- G. R. Pozina, A. V. Kavokin, V. P. Kochereshko, I. N. Uraltsev, D. R. Yakovlev, G. Landwehr, R. N. Bicknell-Tassius and A. Waag 639 Oscillator strength study of the 2D-3D exciton transition in CdTe/(Cd,Mn)Te quantum wells and superlattices
- V. L. Talyanskii 643 The instability of surface plasma vibrations in resonant tunneling diodes (RTD)
- H. Ogasawara, A. Kotani, B. T. Thole, K. Ichikawa, O. Aita and M. Kamada 645 La 5p core photoemission spectra at the 4d \rightarrow 4f resonance in LaF₃
- M. Albert, R. Kershaw, K. Dwight and A. Wold 649 Preparation and characterization of semiconducting α -MoTe₂ single crystals
- K. Kikuchi, T. Uda, A. Sakuma, M. Hirao and Y. Murayama 653 Electronic band calculations for zinc-blende BN with nonlocal density functionals
- N. Tomita and H. Fukutome 659 Anomalies in spin of SDW solitons and in charge of CDW solitons in the 1D extended Hubbard model with a bond alternation
- N. Tomita and H. Fukutome 663 Regular density waves in the half filled 1D extended Hubbard model with a bond alternation
- R. G. Jordan, A. M. Begley, Yan Liu, S. L. Qiu and R. I. R. Blyth 667 Electronic structure in β' -AgMg

Superconductors and Superconductivity

- M. Breza 673 On electronic structure of lanthanide analogs of Y-Ba-Cu superconductors
- J. M. Navarro, A. Fuertes, P. Gomez-Romero and J. Rodríguez-Carvajal 677 Crystal structure of La_{1.85}Ba_{0.15}CaCu₂O_{6+y} determined by neutron powder diffraction
- Shi Da-ning and Li Zheng-zhong 683 Effect of impurity and van Hove singularity in high-T_c superconductors

General Papers (contd)

- A. V. Skripov, A. V. Mirmelshstein and M. Yu. Belyaev 689 Heat capacity of TaV₂H_x(D_x): evidence for a low-temperature phase transition
- N. N. Niftiev and O. B. Tagiev 693 Injection and thermostimulated currents in MnIn₂S₄ single crystals
- K. Annapurna and S. Buddhudu 697 Absorption properties and non-linearity parametrization of Nd³⁺-doped laser dyes
- A. Kimura, S. Suga, H. Matsubara, T. Matsushita, Y. Saitoh, H. Daimon, T. Kaneko and T. Kanomata 707 Electronic structures of Mn₂Sb and MnAlGe: photoemission and inverse photoemission spectroscopy

- K. Aoki, T. Kondo and Y. Takahashi 711 Cross-talk coupling between two filamentary currents in n -GaAs under longitudinal magnetic field
- Z. C. Tao and M. Singh 717 Theoretical calculation of reflectance and transmission spectra of periodic and quasi-periodic multiple layers
- i Author Index Nos 1-8

MARCH

VOLUME 81, NUMBER 9

1992

General Papers

- Weiming Que 721 Exact solutions for excitons in parabolic quantum dots
- C. C. Yu 725 Possible explanation of susceptibility experiments on dilute systems of random magnetic dipoles
- D. Gottlieb, M. Lagos and M. Montenegro 729 Singlet excitations in the anisotropic $S = 1/2$ antiferromagnetic Heisenberg model
- P. Dubček, B. Etlinger, B. Pivac and M. Kranjčec 735 Infrared investigation of phonon modes in $(\text{Ga}_{1-x}\text{In}_x)_2\text{Se}_3$ solid solution in the $0.10 \leq x \leq 0.40$ concentration range
- W. Clemens, T. Kachel, O. Rader, E. Vescovo, S. Blügel, C. Carbone and W. Eberhardt 739 Quantum size effects and the enhancement of the exchange splitting in ultrathin Co overlayers on Cu (100)
- D. Bricis, J. Ozols, U. Rogulis, J. Trokss, W. Meise and J.-M. Spaeth 745 Magnetic circular dichroism of the optical absorption and optically detected ESR of X-irradiated Tb^{3+} doped and undoped $\text{CaO} \cdot \text{P}_2\text{O}_5$ glasses

Superconductors and Superconductivity

- V. Bhat, C. N. R. Rao and J. M. Honig 751 Fluorination of La_2NiO_4 and $\text{La}_2\text{CuO}_{4+\delta}$
- Jingqing Liu, Tienan Zhao, Yujun Mo, Texin Li, Yulong Liu, Ke Zhu, Yuliang Li, Youxin Yao, Deliang Yang, Xiaohong Wang and Daoben Zhu 757 Normal and surface enhanced Raman scattering study of C_{60} and C_{70}
- L. N. Pal-Val, P. P. Pal-Val, V. D. Natsik and V. I. Dotsenko 761 Comparative study of the low-temperature acoustic properties of CuO and $\text{YBa}_2\text{Cu}_3\text{O}_x$ ceramics
- R. S. Liu, D. N. Zheng, S. D. Obertelli, J. S. Ho, T. M. Chen, P. P. Edwards and C. T. Chang 767 Microstructure, thermoelectric power and magnetic irreversibility of coprecipitated $\text{YBa}_2\text{Cu}_3\text{O}_x$ powders
- Guohui Cao, Ruzhang Ma, Minzhu Shen, Yang Li, Yonghua Wu and Genmiao Wang 771 Study of lattice softening on Bi-system superconductor by means of ^{119}Sn Mössbauer spectroscopy

General Papers (contd)

- Y. Yamada and Y. Uesu 777 Ferroelasticity, pseudoelasticity and shape memory effect in $\text{Pb}_3(\text{PO}_4)_2$
- I. S. Bakshee, E. A. Salkov and B. I. Khizhnyak 781 $1/f$ noise in $\text{Hg}_{1-x}\text{Cd}_x\text{Te}$ converted from n - to p -type by native doping
- C. D. Chen 785 Some aspects on interface modes and LO eigenmodes in GaAs/AlAs quantum wells

- A. K. Ibrahim, A. I. Abou Aly, A. El-khatieb and T. Habib 789 Structural relaxations in irradiated Ni-P metallic glasses
- T. Venkatappa Rao, G. Gangadhar Reddy and A. Ramakanth 795 Ground state properties of the periodic Anderson model
- J. P. Doran, J. F. Donegan, J. Hegarty, R. D. Feldman and R. F. Austin 801 Quantum well width dependence of exciton-phonon interaction in $\text{Cd}_{0.13}\text{Zn}_{0.87}\text{Te}/\text{ZnTe}$ single quantum wells

MARCH

VOLUME 81, NUMBER 10

1992

CONTENTS

General Papers

- C. M. Hsiao, W. N. Mei and D. S. Chuu 807 Quantum confinement effect on the impurity states of a spherical confining system
- Y. Pereg, M. Weger and A. Kalma 811 Symmetric and antisymmetric solutions of the BCS gap equation with a Bardeen-Pines potential
- R. C. Ashoori and R. H. Silsbee 821 The Landau level density of states as a function of Fermi energy in the two dimensional electron gas
- D. Schmeißer, W. Jaegermann, Ch. Pettenkofer, H. Wachtel, A. Jimenez-Gonzales, J. U. von Schütz, H. C. Wolf, P. Erk, H. Meixner and S. Hünig 827 One-dimensional band dispersion with a correlation modulated charge density
- B. Srinivasan and S. Ramasesha 831 Approximate VB-MO schemes for excitation gaps in Hubbard models
- J. Vackář and A. Šimůnek 837 Phase-shift technique for generating generalized norm-conserving semilocal pseudopotentials
- Z. Ikonc, G. P. Srivastava and J. C. Inkson 841 Intersubband absorption line broadening in $\text{In}_{0.53}\text{Ga}_{0.47}\text{As}/\text{In}_{0.52}\text{Al}_{0.48}\text{As}$ quantum wells: a pseudopotential calculation

Superconductors and Superconductivity

- T. Nagao, H. Mori and F. Yonezawa 847 Impurity scattering in the high-temperature superconductors
- L. S. Grigoryan, P. Chand, S. V. Sharma and A. K. Majumdar 853 Carbon nanocluster composites: synthesis, characterization and expectations
- T. Pichler, M. Matus, J. Kürti and H. Kuzmany 859 Electronic transitions in K_xC_{60} ($0 \leq x \leq 6$) from *in situ* absorption spectroscopy
- Y. C. Chuang, G. F. Zhou, J. P. Liu, G. W. Qiao, J. N. Li, X. Li, F. R. de Boer and J. J. M. Franse 863 High-field magnetization of MSTG processed $\text{YBa}_2\text{Cu}_3\text{O}_7$
- S. Das and N. C. Das 867 Theory of hole superconductivity in high T_c superconductors: BCS-Gorkov formalism in extended Hubbard model

General Papers (contd)

- M. Laberge, M. Nafi, D. J. Simkin and B. Dunn 873 Anti-Stokes luminescence and energy transfer in $\text{Eu}^{+3}\beta''$ -alumina

- Y. Chen, J. Massies, G. Neu, C. Deparis and B. Gil 877 Effects of the substrate misorientation on the excitonic transition properties in GaAs/AlAs superlattices

MARCH

VOLUME 81, NUMBER 11

1992

General Papers

- M. L. Lyra and M. D. Coutinho-Filho 883 Dynamical aspects of the ferromagnetic transition in the Hubbard model
- K. Murayama, H. Oheda, S. Yamasaki and A. Matsuda 887 Electron time of flight experiment under high electric field in α -Si:H
- S. C. Erwin and W. E. Pickett 891 Vanishing Schottky barriers in diamond/metal interfaces
- M.-H. Whangbo and E. Canadell 895 Nonelectronic origin of superlattice modulations and resistivity anomalies in ternary copper sulfides
- E. V. Sampathkumaran and I. Das 901 Ferromagnetic, dense Kondo behaviour in the alloys, $\text{CeNi}_x\text{Ga}_{4-x}$ and $\text{CeCu}_x\text{Ga}_{4-x}$
- I. Das and E. V. Sampathkumaran 905 Competition between Kondo effect and magnetic ordering in CePd_2Ge_2
- P. Pumilia, S. Abbate, G. Baldini, D. R. Ferro and R. Tubino 909 Nonlinear vibrational excitations in molecular crystals. Molecular mechanics calculations

Superconductors and Superconductivity

- P. I. Arseyev 917 Possible mechanism for high- T_c superconductivity
- Y. O. Nakamura, N. Matsuda and Y. Shiina 923 Pair-breaking effect in the substitution for Cu in high T_c copper oxides
- Z. J. Yang, H. Bratsberg, T. H. Johansen, G. Helgesen, A. T. Skjeltorp and F. Vassenden 929 Quasistatic responses of fluxoids in an $\text{Y}_1\text{Ba}_2\text{Cu}_3\text{O}_{7-\delta}$ film
- O. V. Dolgov and I. I. Mazin 935 Ginzburg-Landau analysis of superconducting K_3C_{60}
- F. Ynduráin 939 Interplay between electron-phonon superconductivity and magnetic order in high T_c superconductors

General Papers (contd)

- D. B. Tran Thoi 945 Hydrogenic impurity in quantum-well wires/effects of the image charges
- D. C. Ailion and R. Blinc 949 Spin-lattice relaxation via sliding of the modulation wave in incommensurate charge density wave systems
- C.-J. Chen, G. Y. Wu and K.-M. Hung 951 Multi-band KP theory of hole energy levels of heterostructures in transverse magnetic field
- A. A. Ezhevskii, N. T. Son and C. A. J. Ammerlaan 955 Electron paramagnetic resonance of FeFeAl complexes in silicon

- A. Mujica and A. Muñoz 961 Selfconsistent tight-binding calculations of band offsets in GaAs/Al_xGa_{1-x}As-(110) and GaSb/Al_xGa_{1-x}Sb-(110) heterojunctions. Theoretical evidence for a new common-anion rule
- A. Alexandrov 965 New vibration excitations in metal oxides
- i Instructions for Authors on the Preparation of Camera-Ready Manuscripts for *Solid State Communications*

MARCH

VOLUME 81, NUMBER 12

1992

CONTENTS

General Papers

- N. N. Ageeva, I. L. Bronevoi, V. A. Mironov, S. E. Kumekov and V. I. Perel' 961 An abnormal dependence of the reversible threshold bleaching in GaAs on quantum energy of picosecond excitation light pulse
- M. Sacchi, F. Sirotti and G. Rossi 977 Crystal field induced linear dichroism in the 3d X-ray absorption of rare-earths

Superconductors and Superconductivity

- L. M. Fisher, N. V. Il'in and N. A. Podlevskikh 983 Pinning and the size of grains in high- T_c ceramics
- B. Friedl, C. Thomsen, H.-U. Habermeier and M. Cardona 989 Effects of Landau-damping on the Raman-active phonons of YBa₂Cu₃O_{7- δ}
- T. Ohno, M. Kasai, Y. Kanke, Y. Kozono and M. Hanazono 993 Ferromagnetic resonance study on La_{0.8}Sr_{0.2}MnO₂ and YBa₂Cu₃O₇/La_{0.8}Sr_{0.2}MnO₂/YBa₂Cu₃O₇
- M. Guillaume, P. Allenspach, J. Mesot, U. Staub, A. Furrer, R. Osborn, A. D. Taylor, F. Stucki and P. Unternährer 999 Neutron spectroscopy of the crystalline electric field in high- T_c YbBa₂Cu₃O₇
- S. M. Butorin, V. R. Galakhov, E. Z. Kurmaev and V. I. Glazyrina 1003 Soft X-ray emission CuL spectra and copper-oxygen bond covalency in high- T_c superconductors

General Papers (contd)

- H. D. Patil, R. V. Upadhyay, N. R. Shamkuwar and R. G. Kulkarni 1011 Magnetic ordering in disordered spinels Zn_xMg_{1-x}FeCrO₄
- A. I. Akimenko and N. M. Ponomarenko 1015 Phonon-assisted electron resonance scattering effect in CeNi₅ point-contact spectra
- T. Osada, N. Miura and L. Eaves 1019 Magneto-tunneling in the n -type-GaAs/AlGaAs wide-well double barrier structure under transverse high magnetic fields
- Kuo-Tong Chen, Hao-Chieh Liu, Rei Fang, Teng-Chien Yu and R. F. Brebrick 1025 Occurrence of a miscibility gap in thin surface layers of Hg_{1-x}Cd_xTe(s)
- 1029 Author Index Nos 1-12
- i Erratum